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STAFF REPORT: REGULAR CALENDAR

APPLICATION FILE NO.: **2-03-013**

APPLICANTS: **Seadrift Association and Kyra Ingemansson**

PROJECT DESCRIPTION: Replacement of the existing wooden bulkhead surrounding Seadrift Lagoon with steel sheet pile bulkhead.

PROJECT LOCATION: Seadrift Lagoon between Dipsea Road and Seadrift Road, Stinson Beach, Marin County

1.0 EXECUTIVE SUMMARY

The applicants propose to remove approximately 12,000 linear feet of deteriorating wooden bulkhead surrounding the Seadrift Lagoon and replace it with epoxy coated steel sheet piling. The applicants also propose to temporarily remove 80 private docks and replace portions of 144 decks that would be demolished during the construction process. The new bulkhead would be located landward of the existing bulkhead and would be vibrated to approximately 12 feet below the existing mudline. Staff recommends that the Commission **Approve** permit application 2-03-013 with conditions to prevent impacts to water quality.

2.0 STAFF RECOMMENDATION

The staff recommends conditional approval of Coastal Development Permit Application No. 2-03-013.

Motion: *I move that the Commission approve Coastal Development Permit Application No. 2-03-013, subject to the conditions specified below.*

Staff Recommendation of Approval

The staff recommends a YES vote. To pass the motion, a majority of the Commissioners present is required. Approval of the motion will result in the adoption of the following resolution and findings.

Resolution

The Coastal Commission hereby **grants** permit No. 2-03-013, subject to the conditions below, for the proposed development on the grounds that (1) the development is in conformity with the provisions of Chapter 3 of the California Coastal Act of 1976 and (2) there are no feasible alternatives or feasible mitigation measures other than those specified in this permit that would substantially lessen any significant adverse impact that the activity may have on the environment.

2.1 Standard Conditions

1. Notice of Receipt and Acknowledgment. The permit is not valid and development shall not commence until a copy of the permit, signed by the permittees or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.
2. Expiration. If development has not commenced, the permit will expire two years from the date on which the Commission voted on the application. Development shall be pursued in a diligent manner and completed in a reasonable period of time. Application for extension of the permit must be made prior to the expiration date.
3. Interpretation. Any questions of intent of interpretation of any condition will be resolved by the Executive Director or the Commission.
4. Assignment. The permit may be assigned to any qualified person, provided assignee files with the Commission an affidavit accepting all terms and conditions of the permit.
5. Terms and Conditions Run with the Land. These terms and conditions shall be perpetual, and it is the intention of the Commission and the permittees to bind all future owners and possessors of the subject property to the terms and conditions.

2.2 Special Conditions

1. Permit Required for Maintenance of Steel Sheet Piles

   Any future maintenance, including reapplication of Carboline 890 or another coating, would be subject to Commission review and authorization through either an amendment to this permit or a new coastal development permit pursuant to Coastal act Section 30610(d) and Section 13252(a) of Commission's regulations

2. Removal and Disposal of Debris.

   All loose materials and debris resulting from construction activities shall be removed from the lagoon in their entirety as soon as possible and shall be legally disposed of either outside of the Coastal Zone or inside the Coastal Zone in accordance with an approved coastal development permit.

3. Construction Staging

   Construction staging shall not occur outside the Seadrift Association parcel (APN 195-32-57) on the west side of the lagoon. Construction materials and equipment shall be stored in the upland areas of the parcel, inland of the existing wooden bulkhead, and shall not be stored the intertidal zone. Construction materials shall be stored on pallets, under cover and in secondary containment.

4. Sediment Control

   A. Construction shall occur during the lowest water level in Seadrift Lagoon that would still allow the barges to remain afloat.

   B. The new bulkhead shall be installed behind the existing bulkhead to contain sediment and turbidity.

   C. A silt curtain shall be placed around the existing, creosote-treated timber bulkhead during the installation of the new bulkhead and the removal of the existing bulkhead.

   D. ***Prior to commencement of any construction***, the eastern tide gate at Seadrift Lagoon shall be closed and remain closed for the duration of construction and for no less than four hours following the completion of construction each day activities authorized under this permit are carried out.

5. Chemical Control

   A. Wood treatment products and any other chemicals shall not enter waters of Seadrift Lagoon under any circumstances. Cutting and/or sawing of treated wood are prohibited within 50 feet of lagoon waters.

   B. Only wood pre-treated with EPA approved chemicals appropriate for this use shall be used for deck replacements that require treated wood. ***Prior to commencement of any construction,*** the applicants shall provide certification from the supplier for any chemically treated lumber that the wood has been conditioned following treatment to minimize leaching of wood preservative chemicals in accordance with the *Best Management Practices for the Use of Treated Wood in Aquatic Environments, July 1996,* and any revisions thereto, developed by the Western Wood Preservers Institute.

6. Spill Prevention, Containment, and Cleanup Plan:

   A. Mobile fueling of construction equipment and vehicles is prohibited within Seadrift Lagoon.

   B. ***Prior to issuance of this Coastal Development Permit***, the applicants shall submit for review and written approval by the Executive Director a detailed plan to prevent, contain, and cleanup any fuel, oil, or hazardous material spills. At a minimum, the plan shall describe the spill equipment to be stored at the project site and on all the barges during construction and the measures to be taken should a spill occur.

   C. The applicants shall undertake development in accordance with the approved plans. Any proposed changes to the approved plans shall be reported to the Executive Director. No changes to the approved plans shall occur without a Commission amendment to this CDP unless the Executive Director determines that no amendment is legally required.

7. Property Owner's Permission to Undertake Development

   Consistent with Section 30601.5 of the Coastal Act, this permit only authorizes development on property upon which the landowner has expressly granted permission to carry out the development as approved and conditioned by the Commission.

3.0 FINDINGS AND DECLARATIONS

The Commission hereby finds and declares as follows:

3.1 Project Location

The project site, located on the filled portion of the sand spit between Dipsea Road and Seadrift Road in Stinson Beach, Marin County, entails the entire perimeter of the Seadrift Lagoon, within the private, gated community of Seadrift (Exhibit 1, Vicinity Map & Exhibit 2, Project Location Map). Seadrift Lagoon is an artificially created interior lagoon located between Dipsea and Seadrift Roads and is hydrologically connected to Bolinas Lagoon via two tide gates (Exhibit 3, Tide Gates Location Map). The western tide gate consists of two 36" inlet pipes; a single 24" outlet pipe makes up the eastern tide gate. The tide gates are controlled by the Seadrift Association via flap gates to maintain water levels in the Seadrift Lagoon. The waters of Seadrift Lagoon are part of the Gulf of the Farallones National Marine Sanctuary.

For all of the properties fronting the Seadrift Lagoon, an existing wooden bulkhead separates the lagoon from the landward portion of the properties. The bulkhead, installed around 1965, is approximately three feet high (it is unknown how deep the vertical posts are driven into the lagoon's bottom) and consists of creosote treated wooden posts and lagging (Exhibit 5, Site Photograph). The replacement is deemed necessary as extensive deterioration and rotting have occurred throughout the entire Seadrift bulkhead due to the corrosive saltwater environment.

3.2 Project History

In 2002, five Seadrift residents with properties adjacent to the lagoon applied for a coastal development permit (CDP No. 2-02-001) to replace 410 feet of deteriorating wooden bulkhead on their properties with PVC sheet piling. The Commission continued the hearing on the project at the October 2002 meeting due to concerns regarding human health and water quality impacts from PVC. The applicants then withdrew their CDP application because the Seadrift Association had decided that the entire bulkhead needed replacement and that a suitable material other than PVC would be proposed in response to the concerns regarding the PVC material.

The proposed project is the result of consensus reached by 178 of the 179 property owners surrounding Seadrift Lagoon who have given their permission to allow the Seadrift Association and the engineering consultant, Ron Noble, to represent them and submit this application on their behalf. One of the owners of property fronting Seadrift Lagoon, Kyra Ingemansson, did not allow the Seadrift Association or Ron Noble to act as her agent, but has signed onto the application as a co-applicant. However, she opposes the proposed use of the epoxy coated steel sheet piling due to the potential environmental impacts that would result from the maintenance of the bulkhead with the epoxy coating. Ms. Ingemansson has indicated that she would prefer the bulkhead to be replaced with untreated wood and has provided information about various tropical hardwood species that are naturally resistant to deterioration from use in a marine environment. The potential water quality impact of the proposed project, including the concerns raised by Ms. Ingmansson regarding the epoxy coating on the steel sheet piling, Carboline 890, is addressed in the Water Quality section below.

At this point it is unclear whether Ms. Ingemasson would remain as a co-applicant. If she remains as a co-applicant, the development would be carried out on her property as approved and conditioned by the Commission, however, should she withdraw her property from this application, the proposed development would not be allowed to be carried out on her property pursuant to Section 30601.5 of the Coastal Act. Due to the numerous property owners involved in the proposed development, and to clarify where the development as approved and conditioned by the Commission can be undertaken consistent with Section 30601.5 of the Coastal Act, **Special Condition 7** clarifies that the proposed development may only take place on properties upon which the landowner has expressly granted permission to carry out the development as approved and conditioned by the Commission.

3.3 Project Description

The applicants propose to remove the existing timber bulkhead lining the rim of the Seadrift Lagoon which totals approximately 12,000 linear feet, and replace it with an epoxy coated steel sheet pile bulkhead. To accommodate the construction of the bulkhead, the applicants are also proposing to temporarily remove 80 private docks before construction and replace them in the same location after the bulkhead is completed and to replace portions of 144 decks that would need to be demolished for construction. The removed docks would be placed on their owners' property during construction and the removed decking material would be disposed offsite.

The replacement bulkhead would be placed landward of the existing wooden bulkhead. The bulkhead would be constructed with interlocking 1'x18' epoxy coated steel sheet piles topped with a 4-inch thick timber cap and timber side walers (Exhibit 4, Project Plans). Specifically, Carboline 890 would be used to coat the steel sheet piles, which the Commission, in consultation with California Department of Fish and Game, approved for a previous bulkhead project in the Bolinas Lagoon (CDP No. 1-97-58). Carboline 890 was found by the Commission to be an acceptable epoxy coating based on its low potential for toxin leaching and low content of epoxy resins. The timber cap and walers, located on top of the sheet piling, above water level, would be pressure treated with alkaline copper quaternary (ACQ), which does not contain arsenic, chromium or other EPA-classified hazardous preservatives or carcinogens. The design life of the bulkhead is estimated to be at least 50 years with zero maintenance. The treated timber caps and walers are expected to have a design life of 25 years.

The construction process would include three general steps. First, the private docks and decks would be removed from the landside. Next, the new bulkhead would be installed behind the existing timber bulkhead. Finally, the existing bulkhead would be removed and the docks and decks replaced.

There are currently 80 private docks in the Seadrift Lagoon and 144 decks that extend landward from the existing bulkhead to the residents' properties. As mentioned above, the 80 docks would be placed on their owners' properties during construction. The applicants estimate that for each deck approximately two to three feet of decking would need to be demolished to make room for the installation of the new bulkhead.

Both the removal of the existing and installation of the new bulkhead would be performed using two portable pontoon barges, approximately 20'x40' in size, which would be towed by skiffs. For the installation, one pontoon would support an excavator with a light vibro head and hydraulic power pack that would vibrate the new sheet piles into place. The second pontoon barge would be a service float that would transfer new sheet piles from the staging area to the

installation area. To remove the existing bulkhead, an excavator with a sling attachment would be used on one float to extract the bulkhead vertically and place it onto the second barge. The second barge would transport the bulkhead pieces to a staging area where a small landside crane would be used to load the demolished materials to a truck destined for a disposal site.

After removal of the existing timber bulkhead, docks that have been removed would be placed back in their original location and portions of decks that have been demolished to allow for construction would be replaced from the landside using the same material type that was removed, on a lot per lot basis. Where treated timber was removed, such as sub-deck structural material, a suitable and approved material, and/or treatment preservatives that does not have adverse impacts to human health, water quality, and biological resources would be used instead.

A vacant lot owned by the Seadrift Association located at the western end of the Seadrift Lagoon on Dipsea Road (Exhibit 5, Location of Seadrift Association Lot) would be used as the construction staging area where all equipment and materials would be stored. The lot is an approximately 100'x100' parcel consisting mostly of sand with some ground cover vegetation on two sides.

Approximately 10 months would be needed to complete the proposed development with construction taking place between 8AM to 5PM on weekdays. The proposed project construction would add 16 week day car trips by the construction crew to the local roads over a 10 month period. The proposed project would also generate one to two semi-truck trips per day for 90 days and one or two dump truck trips every 10 days for 150 week days.

The applicants are proposing to implement the following measures to minimize impacts to water quality and contain any accidental hazardous waste spill:

- Construction would occur during the lowest water level that would still allow the barges to remain afloat.
- The new bulkhead would be installed behind the existing bulkhead to contain sediment and turbidity.
- A silt curtain would used by the contractor in areas where the existing bulkhead is so deteriorated that it cannot act as a sufficient barrier to contain and minimize turbidity and suspension of sediment during the installation of the steel pile bulkhead.
- A silt curtain would be placed around the existing, creosote-treated timber bulkhead during the removal process. Any loose debris that would result from the extraction and removal of the existing bulkhead would be removed immediately.
- The applicants' contractor would submit a hazardous spill containment plan for Commission approval before construction begins.
- The applicants' contractor would have necessary spill prevention and containment equipment on board all of the barges during construction.

3.4 Coastal Act Issues

3.4.1 Water Quality

Coastal Act Section 30230 states:

> *Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.*

Coastal Act Section 30231 states:

> *The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.*

Seadrift Lagoon is an artificially created lagoon that is approximately 5,500 feet long by 150 to 550 feet wide and is relatively shallow, with a maximum depth of approximately 6 feet. The lagoon is used for non-motorized, recreational boating and swimming by members of the Seadrift community only. Natural beach sand deposits underlie the southern portion of the lagoon and much of the land along the north side of Seadrift Lagoon was created by placing sandy fill that was excavated to create the lagoon. The entire lagoon is surrounded by existing single-family, detached, residential housing accessed from Seadrift and Dipsea Roads. Seadrift Lagoon is considered to have three types of habitat: 1) upland habitat, which is not usually covered by water at high tide; 2) inter-tidal habitat, which is exposed to low tide but covered by water at high tide; and 3) sub-tidal habitat, which is always under water. The rear yards of the single-family homes are the established upland habitat area; beyond the existing bulkhead is the inter-tidal and sub-tidal habitat.

A 2003 field reconnaissance and literature search of the species and habitat of Seadrift Lagoon by biological consultant L.A. de Wit shows that the lagoon does not support any special-status species or sensitive habitats, including eelgrass beds, and concludes that "the lagoon macroepibiota is relatively depauperate and characterized by mussels, sponges, and other invertebrates that were most commonly observed attached to the existing bulkhead and floats." The report also states that staff from Point Reyes Bird Observatory indicated that while various species of birds use Seadrift Lagoon due to its adjacency to Bolinas Lagoon, it is not known to be a critical habitat for any avifauna or support any threatened or endangered bird. As such, the Seadrift Lagoon would not be considered an area of special biological significance.

Unlike Seadrift Lagoon, Bolinas Lagoon, located immediately to the north, is considered a biologically significant and environmentally sensitive habitat. The two lagoons are physically separated by the sand spit and residential development on the north side of Seadrift Lagoon, but are hydrologically connected by two existing tide gates located at the eastern and western ends of Seadrift Lagoon. The tide gates are controlled by the Seadrift Association to maintain a certain water level in Seadrift Lagoon. When the tide gates are open, water from Bolinas Lagoon flows

into Seadrift Lagoon via the western tide gate and water from Seadrift Lagoon flows into Bolinas Lagoon through the eastern tide gate.

Bolinas Lagoon is within the Gulf of the Farallones National Marine Sanctuary, one of four national marine sanctuaries in California and one of thirteen in the nation. The Sanctuary was designated in 1981 to protect and manage the 1,255 square miles encompassing the Gulf of the Farallones, Bodega Bay, Tomales Bay, Drakes Bay, Bolinas Bay, Estero San Antonio, Estero de Americano, Duxbury Reef, and Bolinas Lagoon. The approximately 2.2-square-mile (1,400-acre) Bolinas Lagoon contains environmentally sensitive habitat, including wetland and mudflats. Bolinas Lagoon provides an important haul-out and birthing site for harbor seals. In addition, benthic invertebrates and fish in the lagoon support a great diversity and abundance of wintering and migratory shorebirds, waterfowl, gulls, and other water-associated birds (Marin County LCP 1981). Bolinas lagoon is the only designated "Wetland of International Significance" on the Pacific Flyway as determined by the Convention on Wetlands of International Importance in 1998, and was recognized particularly for its waterfowl habitat. Approximately 245 species of birds have been identified at the Lagoon and its surrounding watershed. Twenty-three of these species are considered rare, threatened, or endangered. Shorebirds and waterbirds such as the brown pelican, snowy plover, dunlin, great blue heron, black crowned night heron, willet, sandpiper, and greater sand plover have been observed on the lagoon. Heron and egret are known to nest in the lagoon. Of the fifty or so estuaries that have formed along the Pacific Coast, Bolinas Lagoon is one of only 13 that sustains large numbers of migratory shorebirds. Furthermore, the Bolinas Lagoon Management Plan prepared by Marin County in 1996 also identified three species each of amphibians and mammals that frequent Bolinas Lagoon as rare, threatened or endangered (Bolinas Lagoon Ecosystem Restoration 2001). Marin County designates Bolinas Lagoon as a County Nature Preserve. The U.S. Army Corps of Engineers found that Bolinas Lagoon is part of a larger natural habitat complex that is part of or adjoins the Sanctuary, encompassing the Pt. Reyes National Seashore, Golden Gate National Recreation Area, Central California Coast Biosphere Preserve, Mt. Tamalpais State Park, and the Audubon Canyon Ranch Bird Sanctuary (USACOE 1997).

Coastal Act Section 30230 requires that marine resources be maintained, enhanced, and where feasible, restored and provides special protection to areas and species of special biological or economic significance. Coastal Act Section 30231 further requires that the biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of groundwater supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams. The Commission considers Bolinas Lagoon to be a unique and important coastal wetland and finds that any development proposed within the connected Seadrift Lagoon must be undertaken to avoid impacts that would significantly degrade the biological productivity and quality of these connected coastal waters and wetlands. Furthermore, Seadrift community members use Seadrift Lagoon for recreational swimming and non-motorized boating. Thus, it is important that the proposed project protect human health of recreational users of these waters consistent with Section 30231.

3.4.1.2 Water quality impacts from epoxy coating

The applicants are proposing to use epoxy (Carboline 890) coated steel sheet piles to replace the existing wooden bulkhead. Epoxy is a common protective coating applied to a number of structures in the marine environment to enhance durability and resistance against chemical and physical corrosion. The Commission has approved a variety of marine structures using epoxy coated steel, including support piles for offshore bird platforms (CDP No E-04-010), dock pilings (CDP Nos. 5-04-103 and 5-04-169), and bulkheads. As mentioned above, the Commission has previously approved a steel bulkhead coated with Carboline 890 for use in Bolinas Lagoon (CDP No. 1-97-58). Carboline 890 is a two-component, industrial epoxy system whereby the epoxy resin and the curing agent are packaged separately and must be mixed together just before being used. Based on the Material Safety Data Sheet (Exhibit 6), each component contains hazardous materials including silica, the epoxy resin itself, and volatile organic compounds (VOCs) such as benzene, xylene, and toulene. However, once the components are combined and given proper time to cure and harden, the active chemicals become inert and would no longer pose a significant risk to human health or marine life. The California Department of Health Services states, "The hardened, finished [epoxy] polymers are almost non-toxic; it is exposure to the uncured resin components that can be harmful" (Exhibit 7, Epoxy Resin Systems Fact Sheet)

Since the proposed development would install steel sheet piles pre-treated with the Carboline 890 coating, meaning that the epoxy would have been properly applied and cured by the manufacturer before being shipped to the construction site, there would not be a significant potential for toxins in the epoxy to leach into Seadrift Lagoon and adversely affect marine resources or the quality and biological productivity of the coastal water. The only significant opportunity for Carboline 890 to present any risk to the water quality and marine organisms of Seadrift Lagoon would be during any future bulkhead maintenance activity that required the reapplication of Carboline 890 to the bulkhead in situ. Application of the coating in situ would present a risk of water quality impacts through accidental spills, overspray, and water contact with uncured coating. This is the chief concern raised by Ms. Ingmansson. The manufacturer of the steel sheet piling estimated that based on the thickness of the steel (0.22 inches) and epoxy coating (two coats of 8 mils[1] each would be applied) the design life of the epoxy coated steel bulkhead would be at least 50 years with zero maintenance (Exhibit 8, June 21, 2005 Letter from International Construction Services to Ron Noble). Periodic maintenance could prolong the design life, but in any case, the proposed bulkhead would eventually deteriorate due to corrosion by the saltwater environment. As specified in **Special Condition 1**, any future maintenance, including reapplication of Carboline 890 or another coating, would be subject to Commission review and authorization through either an amendment to this permit or a new coastal development permit pursuant to Coastal act Section 30610(d) and Section 13252(a) of Commission's regulations. The impacts of such future maintenance activities would be reviewed for conformity with the resource protection policies of the Coastal Act at the time that such maintenance is proposed. Moreover, epoxies that contain fewer toxins and no VOCs are currently available and could be used for future maintenance of the bulkhead, should that need arise, to reduce the potential for water quality impacts associated with such maintenance activities.

[1] 1 mil = 1/1000 inch

Because the epoxy coating on the steel sheet piles would be cured and hardened before arriving at the project site, VOCs and other toxins from the epoxy would not have a significant potential to leach into Seadrift Lagoon and cause significant adverse impacts to the biological productivity and quality of coastal waters, the Commission therefore finds that the proposed development is consistent with Coastal Act Sections 30230 and 30231.

3.4.1.3 Construction and copper sulfate related water quality impacts

The proposed project would support the goals of Sections 30320 and 30231 because it would remove the existing creosote treated wooden bulkhead and replace it with more durable and less environmentally damaging materials. Creosote, a chemical used to prevent the deterioration of wood by wood-boring organisms, is obtained by the distillation of coal tar and is primarily made up of a mixture of chemicals called polycyclic aromatic hydrocarbons (PAHs). PAHs can potentially leach out of the bulkhead and into the water column where they can be absorbed by fish and other aquatic organisms with potentially adverse consequences.

The applicants propose to replace the existing creosote treated timber bulkhead with epoxy coated sheet pile armor topped with wooden cap and walers treated with ACQ. As discussed above, unlike creosote, the epoxy coating that would be used to treat the steel sheet piling would be in its cured, almost non-toxic condition and would have a significantly lower potential of leaching toxins into the water. As for the proposed use of treated wood, the timber cap and walers would sit on top of the bulkhead above the water level, and would not be immersed in the lagoon water, and therefore, any treatment chemicals in the wood would have a lower potential of leaching into the water. Also, unlike other commonly used wood treatment products such as ammoniacal copper zinc arsenate (AZCA), ammoniacal copper arsenate (ACA), and chromated copper arsenate (CCA), ACQ does not contain any arsenic, chromium, or other EPA classified toxic substances or carcinogens. The wood would be pressure treated with ACQ by the manufacturer before being used at the construction site and would therefore not require any onsite treatment that could contaminate the lagoon water. Moreover, the expected design life of the new steel bulkhead is at least 50 years with zero maintenance, which would be longer than the existing wooden bulkhead that lasted approximately 40 years before requiring complete replacement.

The proposed development would also enhance the water quality of Seadrift Lagoon because it would prevent the erosion of sediments from the surrounding parcels into the lagoon. Presently, many sections of the bulkhead have deteriorated to such an extent that there is no separation between the soil and the water (Exhibit 9, Site Photograph). This sediment has the potential to continue to erode into the lagoon. Replacing the bulkhead would prevent further erosion of the properties surrounding the lagoon.

The proposed development would result in overall improvement to water quality and biological productivity through the removal of creosote treated wood and prevention of erosion; however, if creosote treated wooden debris, or other construction materials were introduced into Seadrift Lagoon during the bulkhead removal and installation process, it may impact the water quality and biological productivity of the project area, inconsistent with Section 30231.Therefore, **Special Condition 2** requires all construction materials and debris to be removed from the lagoon, and requires disposal of all materials outside of the Coastal Zone unless authorized within the Coastal Zone under an approved coastal development permit.

As the proposed staging area would be located directly adjacent to the lagoon, the potential exists for construction material and other debris to enter the lagoon, which would adversely affect water quality and marine organisms. To protect water quality and prevent construction materials or debris from entering the ocean during construction, **Special Condition 3** requires the applicants to store construction material above the intertidal area and to contain construction material and debris to prevent them from entering coastal waters.

Another potential impact to water quality would be from the copper sulfate found in the sediment of Seadrift Lagoon. For 15 to 20 years, ending in 1986, copper sulfate was used to manage algae growth and blooms in Seadrift Lagoon. Although this practice has been stopped, contaminants are still present within the sediment. The U.S. Army Corps of Engineers conducted a study of the copper sulfate levels in the both Seadrift and Bolinas Lagoons during 1999. The samples taken at Seadrift Lagoon showed levels for copper of 12.2-mg/dry kg at the surface and 7.39-mg/dry kg at the bottom. The samples also showed sulfide levels of 22-mg/dry kg at the surface and 3-mg/dry kg at the bottom. The sediments sampled in Bolinas Lagoon showed copper concentrations averaging 9.1-mg/dry kg at the surface and 11.9-mg/dry kg at the bottom and total sulfide concentrations averaging 33.3-mg/dry kg at the surface and 47.7-mg/dry kg at the bottom.

At present, the National Oceanic Atmospheric Administration (NOAA) unofficially uses a value of 34-mg/dry kg as the level of Effects Range-Low (ER-L) for copper concentration in the sediment. Copper concentrations in the sediment below ER-L are not likely to have adverse effects on benthic organisms. The Dredge Material Management Office (ACOE-SF) also unofficially uses 68-mg/dry kg as an "action or review level."[2] When examining dredging projects, any data above that point is considered in the overall risk assessment for a dredging project. Below that level, it is generally ignored. The copper levels the Corps observed in Seadrift Lagoon were lower than both the NOAA (34-mg/dry kg) and DMMO (68-mg/dry kg) numbers.

The Corps does not have any summary data available for totals sulfides, but noted that much higher levels in dredged materials have been observed in studies conducted for the Corps. In those studies total sulfides ranged from over 400 to over 1100 mg/kg and no biological effects were documented. The report states that sulfides generally have a low toxicity since they are normally bound in an insoluble form as a sulfate with various metals. The DMMO has eliminated total sulfides from the list of analytes since it has not been shown to influence toxicity in dredge material testing.[3] Even though copper sulfate is soluble in water, it binds strongly to sediment. Therefore, its leaching potential is low.

The applicants are proposing activities that would disturb the sediment and may suspend sediments in the water column. As mentioned above, the eastern tide gate allows water from Seadrift Lagoon to flow into Bolinas Lagoon. Sediments suspended in the water column at a time when the eastern tide gate is open could migrate to Bolinas Lagoon. Although the copper and sulfide levels sampled by the Corps in the Seadrift Lagoon are not especially high, and the

[2] The Dredge Materials Management Office is a joint program of the San Francisco Bay Conservation and Development Commission (BCDC), San Francisco Bay Regional Water Quality Control Board (RWQCB), State Lands Commission (SLC), the San Francisco District U.S. Army Corps of Engineers (COE), and the U.S. Environmental Protection Agency (EPA).

[3] Analytes are the substances being measured in an analytical procedure.

applicants are proposing to use silt curtains during construction, there is a possibility that the proposed development would increase the levels of copper sulfate within Bolinas Lagoon, which may cause significant adverse effects to the marine resources and water quality of Bolinas Lagoon inconsistent with Sections 30230 and 30231. Therefore to prevent the migration of copper sulfate from Seadrift Lagoon to Bolinas Lagoon, **Special Condition 4** requires that the applicants implement sediment control measures including the use of silt curtains during both the installation and removal of the bulkhead and closing the eastern tide gate during construction and for no less than four hours following the completion of construction for each day of activities authorized under this permit. Four hours represent sufficient time for any sediments disturbed during construction activities to settle as the lagoon is relatively shallow and the sediment would consists mostly of larger sized, sandy particles (as the lagoon bottom is lined with beach sand) that does not take a significant amount of time to settle back to the lagoon floor. In addition, the use of silt curtains would contain the suspended sediments and reduce their potential to disperse throughout Seadrift Lagoon and into Bolinas Lagoon.

Finally, wood treatment chemicals could potentially cause adverse impacts to water quality. The applicants have proposed to use wood pre-treated with ACQ for the timber cap and walers on top of the new steel bulkhead. The wooden cap and walers would not be immersed in the lagoon water, which lowers the potential of wood treatment chemicals leaching into the lagoon. Also, ACQ does not contain any EPA classified hazardous substances or carcinogens and the wood would not require any onsite treatment. However, improper treatment of the wood prior to arrival at the project site could cause wood treatment chemicals to leach into the water, especially during storms, and therefore, to minimize leaching of any wood preservative chemicals, **Special Condition 5** requires that the applicants provide certification from the supplier that the wood has been conditioned following treatment to minimize leaching in accordance with the *Best Management Practices for the Use of Treated Wood in Aquatic Environments, July 1996*, and any revisions thereto, developed by the Western Wood Preservers Institute. In addition, cutting the lumber onsite could cause sawdust and other woody debris treated with chemical preservatives to enter the water, and as such, **Special Condition 5** prohibits the cutting or sawing of any treated lumber within 50 feet of lagoon waters. Finally, while the applicants propose to replace any decking material consisting of treated wood with an environmentally sound alternative, they have not identified the specific material. To avoid the necessity of onsite wood treatment and the risk of spilling wood treatment chemicals into lagoon waters, **Special Condition 5** further requires that only wood pre-treated with EPA approved chemicals be used to replace decks originally constructed of treated wood.

Thus, the proposed project as conditioned will protect the biological productivity and the quality of coastal water and wetlands so as to maintain populations of marine organisms and protect human health of recreational users of these waters by removing creosote treated wood and stopping erosion along the banks of Seadrift Lagoon, as well as preventing impacts to coastal water quality from construction related debris, migration of contaminated sediments into Bolinas Lagoon, and introduction of wood treatment chemicals into coastal waters. Therefore, the Commission finds that as conditioned the proposed project is consistent with Sections 30230 and 30231 of the Coastal Act.

3.5 Oil and Fuel Spills

Coastal Act Section 30232 states:

> *Protection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any development or transportation of such materials. Effective containment and cleanup facilities and procedures shall be provided for accidental spills that do occur.*

As proposed, the project requires the use of an excavator, skiffs to tow the barges, and trucks that bring equipment and construction material to the site and haul away debris. These equipment would use and store diesel fuel, oil, and petroleum products in tanks near and on Seadrift Lagoon. Coastal Act Section 30232 requires that protection against the spillage of crude oil, gas, petroleum products, or hazardous substances be provided in relation to any development or transportation of such materials and that effective containment and cleanup facilities and procedures be provided for accidental spills. Although unlikely, the potential exists for an accidental spill of diesel fuel or oil. To reduce the potential for fuel spills, **Special Condition 6** prohibits the fueling of construction equipment on the Seadrift Lagoon. If a spill were to occur, pursuant to **Special Condition 4,** the eastern tide gate at Seadrift Lagoon would be closed, which would facilitate the containment of the spill. Although closure of the eastern tide gate would lessen the spread of the spill, additional precautionary measures are needed to protect against spills and ensure the effective containment and cleanup of a spill if one were to occur. Therefore, **Special Condition 6** also requires the applicants to submit a spill prevention, containment and cleanup plan for review and approval by the Executive Director. This plan must include a detailed description of spill prevention, containment, and cleanup equipment to be maintained on site and on the barges, the measures that would be implemented to prevent, contain, and clean up any spills, and contact information for responding to spills. The Commission finds that with these conditions in place, the proposed project is consistent with Coastal Act Section 30232.

3.6 Public Access

Section 30211 of the Coastal Act states:

> *Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.*

Section 30211 of the Coastal Act prohibits development that would interfere with the public's right of maximum access to the sea. Seadrift is a private, gated community established before the Coastal Act. Seadrift Lagoon is a part of that community and is an artificially created lagoon available for the exclusive use of Seadrift community members. As such, any disruption in access and use of the lagoon by the proposed development would not be considered an interference of public access because the lagoon is not available for public use. Traffic impacts from construction activities could potentially interfere with access to the public beaches in the area, especially the popular Stinson Beach State Park. Travel by the construction crew would generate approximately 16 vehicle trips per workday throughout the duration of construction, and construction activities would require one to two semi-truck trips per day for 90 days and one

or two dump trick truck trips every 10 days for 150 days. However, all of these vehicle trips would occur on weekdays only, and the area's road experiences heavy traffic mostly on weekends, therefore, the proposed development would not create additional demand on the roads during its peak use times and would not interfere with the public's ability to access the shoreline.

Since the proposed development would not disrupt public use of Seadrift Lagoon as it is not part of a public shoreline, and would not create significant traffic impacts that would interfere with public's ability access to the area's beaches, the Commission finds that the proposed project is consistent with Section 30211 of the Coastal Act.

3.7 California Environmental Quality Act (CEQA)

Section 13096 of the California Code of Regulations requires Commission approval of Coastal Development Permit applications to be supported by a finding showing the application, as conditioned by any conditions of approval, to be consistent with any applicable requirements of the California Environmental Quality Act (CEQA). Section 21080.5(d)(2)(A) of CEQA prohibits a proposed development from being approved if there are feasible alternatives or feasible mitigation measures available, which would substantially lessen any significant adverse effects, which the activity may have on the environment.

The Commission incorporates its findings on Coastal Act consistency at this point as if set forth in full. The staff report addresses and responds to all public comments regarding potential significant adverse environmental effects of the project that were received prior to preparation of the staff report. The proposed project has been conditioned to be found consistent with the policies of the Coastal Act and to minimize all adverse environmental effects. Mitigation measures have been imposed to prevent impacts to water quality. As conditioned, there are no feasible alternatives or feasible mitigation measures available, beyond those required, which would substantially lessen any significant adverse impacts, which the development may have on the environment. Therefore, the Commission finds that the proposed project can be found consistent with Coastal Act requirements to conform to CEQA.

EXHIBITS:

1. Vicinity Map
2. Project Location Map
3. Location of Tide Gates Map
4. Project Plans
5. Location of Seadrift Association lot
6. Carboline 890 Material Safety Data Sheet
7. California Department of Health Services, Fact Sheet on Epoxy Resin Systems
8. June 21, 2005 Letter from William Carp of International Construction Services to Ron Noble
9. Site Photographs

REFERENCES

L.A. deWit Consultants, *Marine Biological Assessment of the Seadrift Lagoon Bulkhead Replacement,* February 13, 2003.